

IN THE CLAIMS

Please amend the claims as follows.

1. (Currently Amended) An electronic device comprising:

a substrate having a core, a conductive layer and at least one build up layer
~~embedded within~~ disposed on said conductive layer, and wherein said substrate is a single
unit;

a semiconductor die disposed on said substrate; and

at least one interconnect disposed between the substrate and the semiconductor
die,

wherein the substrate is bonded ~~with~~ to the semiconductor die by the at least one
interconnect,

wherein the at least one build up layer comprises at least one binder and at least one filler,
and

wherein the at least one filler has a negative coefficient of thermal expansion.
2. (Original) The electronic device of claim 1, wherein the at least one filler
comprises zirconium tungstate.
3. (Original) The electronic device of claim 2, wherein the zirconium tungstate is a
crystalline compound having a nearly isotropic coefficient of thermal expansion of
approximately -4.9ppm/degree C or less over at least the temperature range of -50
degrees C to +250 degrees C.
4. (Currently Amended) A substrate for use in an electronic device, comprising:

a core;

at least one conductive layer disposed on said core;

at least one build up layer having at least one binder and at least one filler ~~embedded within said substrate~~ disposed on said conductive layer, wherein the at least one filler has a negative coefficient of thermal expansion and wherein said substrate is a single unit.

5. (Original) The substrate of claim 4, wherein the at least one filler comprises zirconium tungstate.

6. (Original) The substrate of claim 5, wherein the zirconium tungstate is a crystalline compound having a nearly isotropic coefficient of thermal expansion of approximately -4.9ppm/degree C or less over at least the temperature range of -50 degrees C to +250 degrees C.

7. (Previously Presented) A material for use as a build up dielectric layer for a substrate, comprising:

at least one binder;

at least one filler, wherein the at least one filler comprises zirconium tungstate and wherein the zirconium tungstate is a crystalline compound having a nearly isotropic coefficient of thermal expansion of approximately -4.9ppm/degree C or less over the temperature range of -50 degrees C to +250 degrees C.

8. (Cancel)

9. (Cancel)

10. (Currently Amended) An electronic device comprising:

a semiconductor die,

a next level package having a core, a conductive layer, and an at least one build up layer disposed on said conductive layer, and wherein said next level package is a single unit;

an at least one interconnect disposed between the semiconductor die and the next level package, and

an underfill disposed at least in part between the semiconductor die and the next level package, and

wherein the semiconductor die is bonded ~~with~~ to the next level package by the at least one interconnect, and

wherein the semiconductor die is bonded ~~with~~ to the next level package by the underfill,

wherein the underfill comprises at least one binder and at least one filler, and wherein the at least one filler comprises zirconium tungstate; and wherein the zirconium tungstate is a crystalline compound having a nearly isotropic coefficient of thermal expansion of approximately -4.9ppm/degree C or less over the temperature range of -50 degrees C to +250 degrees C.

11. (Cancel)

12. (Previously Presented) The electronic device of claim 10, wherein the underfill is a no-flow underfill.

13. (Cancel)

14. (Currently Amended) A method of bonding a semiconductor die to ~~with~~ a next level package, comprising:

providing at least one interconnect;

providing an underfill material having at least one binder and at least one filler, wherein the at least one filler comprises zirconium tungstate; wherein the zirconium tungstate is a crystalline compound having a nearly isotropic coefficient of thermal expansion of approximately -4.9ppm /degree C or less over the temperature range of -50 degrees C to +250 degrees C;

arranging the semiconductor die, the next level package, the at least one interconnect and the underfill material such that the at least one interconnect is disposed so as to be capable of joining the semiconductor die with the next level package and such that the underfill material is disposed at least in part between the semiconductor die and the next level package; wherein said next level package comprises a core, a conductive layer, and at least one build up layer disposed on said conductive layer and wherein said next level package is a single unit;

causing the at least one interconnect to bond the semiconductor die with the next level package; and

causing the underfill material to bond the semiconductor die with the next level package.

15. (Cancel)

16. (Cancel)

17. (Currently Amended) An electronic system comprising:

an electronic device having a substrate, the substrate having a core, and at least one build up layer and at least one conductive layer ~~embedded within~~ disposed on the exterior of said core and wherein the substrate is a single unit; and wherein the build up

layer comprises at least one binder and at least one filler, wherein the at least one filler has a negative coefficient of thermal expansion,

18. (Original) The electronic system of claim 17, wherein the at least one filler comprises zirconium tungstate.

19. (Original) The electronic system of claim 18, wherein the zirconium tungstate is a crystalline compound having a nearly isotropic coefficient of thermal expansion of approximately -4.9ppm/degree C or less over the temperature range of -50 degrees C to +250 degrees C.

20. (Currently Amended) An electronic system comprising:

an electronic device having a semiconductor die bonded ~~with~~ to a next level package by an underfill disposed at least in part between the semiconductor die and the next level package, and wherein the next level package comprises a core, a conductive layer and at least one build up layer disposed on the exterior of said conductive layer and wherein said next level package is a single unit;

wherein the underfill and the build up layer comprises at least one binder and at least one

filler, and wherein the at least one filler comprises crystalline zirconium tungstate having a nearly isotropic coefficient of thermal expansion of approximately -4.9ppm/degree C or less over the temperature range of -50 degrees C to +250 degrees C.

21. (Previously Presented) The electronic system of claim 20, wherein

the next level package is chosen from the group comprising of substrates, interposers, printed wiring boards, and printed circuit boards.

22. (Currently Amended) A method of making an electronic device comprising:
- providing a substrate having at least one build up layer ~~embedded within~~ having a
core, a
conductive layer, and at least one build up layer disposed on said core, and wherein said
substrate is a single unit;
- providing a semiconductor die, and
- forming at least one interconnect disposed between the substrate and the
semiconductor
- die, wherein the substrate is bonded with the semiconductor die by the at least one
interconnect, wherein the at least one build up layer comprises at least one binder and at
least one filler, and wherein the at least one filler has a negative coefficient of thermal
expansion.
23. (Previously Presented) The method of claim 22, wherein the at least one filler
comprises zirconium tungstate.